APPENDIX A: GLOSSARY

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This appendix defines key terms used in OSWER's System Life Cycle Management Guidance and related documents.

TERM	DEFINITION
Acceptance Testing	Testing performed by program staff (not project staff) during Implementation to verify that the system solves the information management problem, performs satisfactorily, and is ready for release to users.
Access	The operation of viewing or copying (including extracting) data.
Approval	An examination of life cycle products, and the results of the project review process, by OSWER program management. The approval process has three purposes: first, to confirm the results (i.e., the concepts, products, and management direction) of life cycle efforts to date; second, to approve continuation with the next stage of the life cycle; and third, to confirm the continued commitment of resources to the project. The OSWER life cycle model requires formal approvals at the end of the Initiation and Concept phases, and the Definition, Design, Development, and Implementation stages.
Archive	The third stage of the Operation phase, and the final stage of the system life cycle. Its purpose is to terminate the operation of the system in an orderly, planned manner, ensuring that software and data are properly archived or incorporated into other systems.
Archive Data	The routine storage of data for an operational system, usually done to provide efficient performance. For example, archiving certain data at the end of a fiscal year.
Audit	A guidance- and standards-oriented examination of the products and related documentation contained in a baseline to assure that they are complete, clearly presented, and internally consistent to support a product review. The OSWER life cycle provides for five audits; Concept, Definition, Design, Development, and Operational. Audits are performed by the project staff. Any audit may be repeated as

	necessary. A system life cycle audit is not the same as, and is not intended to substitute for, an audit conducted by the Office of the Inspector General (OIG).
Baseline	The set of life cycle products and other related documentation which officially comprise the system at a given point in time. The OSWER life cycle model provides for five baselines: Initiation, Definition, Design, Development, and Operational. The products contained in each baseline are always reviewed prior to inclusion in the baseline.
Change	A modification to the system or data base(s) for maintenance or performance purposes, without affecting the functionality or structure of the system or data base(s). Other modifications, which do alter the functionality structure, are referred to as enhancements.
Change Control	A process for controlling modifications (i.e., changes and enhancements) to a system. Change control provides a review of requested modifications, and consideration of their impact on a system, before they are made; it also ensures that modifications are made in a manner that does not disrupt ongoing system operation.
Concept	The second phase of the system life cycle. This phase provides a high level of functional and data requirements that relate to an information management problem, and a comprehensive model of a solution to meet the requirements.
Conceptual Data Model	A depiction of data requirements from an organizational perspective. Corresponds to the conceptual schema of a three-schema architecture as defined by the American National Standards Institute. Entity relationship diagrams are often used to depict the conceptual data model. The conceptual data model forms part of the System Concept.
Configuration Accounting	A process for maintaining system baselines, including adding products to a baseline, denoting the components of each product (referred to as configuration items), and monitoring and recording the disposition of requested modifications to the system.

Configuration Management	A function which serves to systematically identify the items that make up a system, and formally control any modifications to those items, in order to help maintain the integrity of the system, and facilitate communication about the system throughout its life cycle.
Custodianship	The functions and responsibilities of an organization, such as an ADP organization, with physical custody of data that supports the work of another organization, such as a program office. For example, the custodian ensures the physical integrity of the data and software under its control; safeguards the media storing data; ensures the data is secure from unauthorized access, modification, or destruction; makes data accessible to users; and implements requested hardware or software modifications.
Data	Representations of facts, concepts, or instructions in symbols suitable for communication, interpretation or processing by human or automated means.
Data Administration	The management function responsible for the planning, definition, organization, protection, and efficiency of data and data bases within OSWER. The goal of Data Administration is the cost-effective provision of data of sufficient quality to support the OSWER mission.
Data Administration Program	A management initiative which includes policies, standards, and procedures that increase an agency's knowledge and management of the: composition of data, source of data, processing of data, meaning of data, flow of data, and dissemination of data. A successful Data Administration program will improve the management of data by introducing procedures that address: data standards, data requirements determination, data definition, data acquisition or collection, data processing, data storage, data usage (including sharing and access), and data disposal.
Data Attribute	A characteristic of a unit of data such as length, value, or method of representation.
Data Base	A collection of interrelated data stored together with controlled redundancy to serve one or more systems or applications.

Data Base Management System (DBMS)	A software system facilitating the creation and maintenance of a data base and the execution of computer programs using the data base.
Data Collection	The recording and capturing of data on behalf of an organization.
Data Definer	The person or organization who determines the essential qualities or meaning of data, and who prescribes and defines procedures which aggregate and refine data. This includes describing the formatting of the resulting information to serve a specific decision-making context.
Data Dictionary	A centralized repository of information about data, including its meaning, relationship to other data, origin, usage and format.
Data Element	The smallest unit of data that has meaning in describing information. A piece of data which would not be meaningful if decomposed further.
Data Entity	See "Entity"
Data Independence	The property of a data base management system that enables data to be processed independently of access mode, storage method or arrangement. Data independence reduces the need to modify application programs when data storage and access methods are modified.
Data Integrity	The quality of data that exists as long as accidental or malicious destruction, modification, or loss of data are prevented. This results in preservation of data in its intended format, length and contents while within a data base.
Data Life Cycle	The data life cycle begins with the definition of data to support new regulations or other program needs, and includes strategic data planning, data standardization, and the methods and standards during the collection, storing, accessing, and archiving of data.
Data Management	A subfunction of Data Administration which is responsible for data-related activities of the system life cycle, such as logical data modeling during requirements definition, data base design, data base management, and the documentation of data-related decisions and products.

Data Security	The protection of data against unauthorized disclosure, transfer, modification, or destruction, whether accidental or intentional.
Data Stewardship	See "Stewardship"
Decision Paper	A decision document presented to management. It summarizes those aspects of the analysis and decisions of a given phase or stage that are important to program management, and requests approval to continue the project. The OSWER life cycle model provides for Decision Papers to be prepared at the end of Initiation, Concept, Definition, Design, Development, and Implementation.
Definition	The first stage of the Definition and Design phase. Its purpose is to define specific, detailed functional and data requirements for the system within the context of the System Concept.
Definition and Design	The third phase of the system life cycle, consisting of two stages: Definition and Design. (See individual definitions of each of these terms).
Design	The second stage of the Definition and Design phase. Its purpose is to produce detailed specifications for the system to meet the functional and data requirements within the context of the System Concept.
Design Data Dictionary	Data dictionary created during Design to support design and development of the information system. It represents an expansion of the Requirements Data Dictionary, and contains all the metadata stored in dictionary. In addition, it contains descriptions of the physical data base structures and the manner in which they are implemented in the test versions of the data base(s). These descriptions include physical records, segments, data sets (or files), keys, block sizes, data set allocation, and physical size limits.
Development	The first stage of the Development and Implementation phase. Its purpose is to produce a system which is ready for acceptance testing and suitable for implementation.

Development and Implementation	The fourth phase of the life cycle. Its purpose is to produce a complete system, fully tested and available for use in normal production mode. There are two stages in this phase: Development and Implementation.
Domain	A set of all values that a particular data element may posses in actual or potential usage.
Enhancement	A modification to a system that results in substantially improved capabilities and, in some way, alters the functionality or structure of the system. Other modifications, which do not alter the structure, are referred to as changes. Examples of enhancements include the addition of new data elements, changing the system (or a part of the system) to run in a different software environment, and replacing data entry screens to improve the user interface and/or improve performance.
Entity	A person, place, thing, concept, or event that is of interest to an enterprise. An entity is something about which we store data. Examples of entities are: waste site, contract, EMPLOYEE. An entity has various attributes, or data elements, which should be recorded. Examples of data elements for the entity "contract" could include CONTRACT-NUMBER, DATE, and OBLIGATION-CEILING.
Evaluation	The second stage of the Operation phase. Its purpose is to determine whether the system is effectively meeting the stated requirements, is operating efficiently and is effectively managed.
Implementation	The second stage of the Development and Implementation phase. Its purpose is to produce a fully tested system containing the data needed at start-up, and to provide needed training to the intended users.
Information	Any set of data which has been aggregated by processing in order to establish a specific meaning and serve in a decision-making context.
Information System	See "System"

Initiation	The first phase of the system life cycle. Its purpose is to define an information management problem within OSWER and to determine whether resources should be committed to exploring ways to address it.
Integration Testing	Testing performed by project staff during Development, following the completion of unit tests for individual components. Components are assembled in the development environment and tested to verify that they function correctly together. Integration testing is iterative, testing additional modules for which unit tests are successfully completed.
Internal Testing	The first kind of testing performed by project staff during Development. While each system component is being developed, it is continually checked to assure that it is internally consistent and conforms to specifications.
Life Cycle	See "System Life Cycle"
Life Cycle Management	The process of managing a system through its life cycle. As practiced by OSWER, it is not a rigid process, but rather a disciplined means for selecting and practicing the management approaches and techniques that are most appropriate for a given information management problem and/or system.
Logical Data Model	A depiction of the logical, or programmatic, data needed to support an organizational mission. The components of a logical data model include data entities and relations, data elements and attributes, keys, secondary keys, and relationships between entities (if data entities are used). The logical data model is a more detailed depiction of the conceptual data model of an organization. It may correspond to the external schema as defined by the American National Standards Institute. The logical data model forms part of the Detailed Data Requirements.
Maintenance	The set of activities that keep a system and data base(s) in operating condition. Maintenance also focuses on optimizing the existing system and data base(s), without affecting functionality or the structure of the system or data base(s).
Metadata	Data about data, such as its definition or its physical characteristics.

Modification	A change or enhancement. See "Change," "Enhancement."
Normalization	The process of reducing a logical data model (structure) to its most basic form, so that the data model is stable, flexible, and without redundancy. A normalized data model is composed of normalized data entities. A normalized data entity includes no repeating groups or data elements among its attributes, contains attributes (data elements) only about the entity being described, and does not include attributes which are dependent on the key of another entity.
Operation	The fifth phase of the life cycle. Its purpose is to operate the system in normal production mode, monitoring and maintaining its performance, until the end of the life cycle, and then to terminate operation. There are three stages in this phase: Production, Evaluation, and Archive.
Phase	The major segments of the system life cycle. There are five phases in the OSWER system life cycle: Initiation; Concept; Definition and Design; Development and Implementation; and Operation.
Privacy	The right of individuals or organizations to constrain the collection and use of data about themselves.
Production	The first stage of the Operation phase. Its purpose is to make the system available to users, and make required changes and enhancements to ensure that it contains to address the information management problem in a cost effective manner.
Production Data Dictionary	Data dictionary produced during Implementation by copying the metadata in the last version of the Design Data Dictionary, for use in testing, implementing, and operating the production system.
Project	An organized effort to solve an information management problem. In most cases, a project extends over the entire system life cycle. In some cases a project extends only through the portion of the life cycle that can be foreseen with confidence, e.g., through Production if the timing for ceasing operation is uncertain.

Project Execution	The set of activities which produce the concept, definition, design, and production versions of a system.
Project Management	The set of activities which monitor and control project execution to ensure that they are performed effectively and in accordance with applicable policies, guidances and practices; and that its products solve the identified information management need.
Quality Assurance	A function that ensures that all products of the life cycle are substantively accurate and address the stated information management problem. Quality assurance is accomplished through the efforts or skilled professionals on the project team, and through formal reviews.
Record	A group of related data elements treated as a unit by an application program.
Release Management	The functions and responsibilities associated with the implementation of modifications to an operational system during the Production stage, and making the revised system available at all user locations.
Requirements Data Dictionary	Data dictionary produced by data modeling activities during Concept and Definition. Metadata recorded about each data entity and data element includes name, programmatic definition, purpose, data steward, data definer, and source.
Review	A formal, quality-oriented examination of a set of related products, to verify that they solve the information management problem. The OSWER life cycle model provides for five reviews: Concept, Definition, Design, Development, and Post-Implementation. Reviews are performed by designated OSWER program staff and supporting program and technical experts. Any review may be repeated as necessary to ensure that all deficiencies in the products have been fully and adequately addressed.
Shared Data	Data stored that is created, accessed, updated, or deleted by more than one organizational unit.

Stage	The segments of the system life cycle that occur within certain larger phases. The OSWER system life cycle divides the Definition and Design phase into two stages: Definition and Design. The development phase is divided into two stages: Development and Implementation. The Operation phase is divided into three stages: Production, Evaluation, and Archive. The phases Initiation and Concept are not divided into stages.
Stewardship	The functions and responsibilities of an organizational entity that exercises control over data on behalf of OSWER. Organizations that require data to be collected, processed, stored or used in support of OSWER's mission have stewardship responsibilities. These responsibilities include ensuring that: (1) Only data relevant to OSWER's missions is collected. (2) Data that is collected is of sufficient quality to support OSWER's missions. (3) Data is reused wherever appropriate within OSWER. (4) Data is clearly defined and documented in compliance with established directives. (5) systems practices under the organization's stewardship conform to EPA Data Administration guidance.
System	An organized set of functions, data, procedures, hardware, software, communications, and/or documentation which enables OSWER to solve a specific information management problem. A system need not necessarily be automated; but most instances of life cycle management will apply to automated information systems.
System Component	A well-defined portion of an information system. Categories of components include, but are not limited to, hardware, software, communications, procedures, reference manuals, user procedures, system administrator procedures, and user support materials.
System Concept	A high-level complete description of a system (including data, processing capabilities, hardware, software and communications). It is produced during the Concept phase and serves as both a check on the validity and completeness of the problem, and the basis for defining more detailed functional and data requirements.
System Decision Paper	See "Decision Paper"

System Life Cycle	The evolution of a system from the initial identification of an information management problem through system termination or replacement.
System Testing	Testing performed by project staff during Implementation, following integration testing and prior to acceptance testing. The completed system is installed in a simulation of the production environment and tested to verify that the system operates correctly in its entirety and satisfies the functional and data requirements. (Note: the term "system testing" is also used to refer generically to all testing performed by project staff: internal, unit, integration, and system testing.)
Threshold Analysis	The process of determining the appropriate review and approval levels for an OSWER system project.
Unit Testing	Testing performed by project staff during Development, as each system component is completed, to ensure that it operates correctly.
Walkthrough	A highly-structured meeting to review the completeness and quality of selected module(s) of the system, or of the entire system. Walkthroughs are usually conducted by the project team, often are intended by user representatives, and may be held at any point in the system life cycle.